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2	1	Cog.Eng. J.H. Baldwin	John Baldwin	7/12/95							
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APPROVED FOR PUBLIC RELEASE

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WHC-SD-WM-TP-367
Revision 0

TANK 241-T-108

TANK CHARACTERIZATION PLAN

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

DQO	Data Quality Objective
DSSF	Double Shell Slurry Feed
NCPLX	Non-complexed
SST	Single-Shell Tank
T-108	Tank 241-T-108
TCP	Tank Characterization Plan
TOC	Total Organic Carbon
USQ	Unreviewed Safety Question
WHC	Westinghouse Hanford Company

1.0 INTRODUCTION

This Tank Characterization Plan (TCP) identifies the information needed to address relevant issues concerning short-term and long-term safe storage and long-term management of Single-Shell Tank 241-T-108 (T-108). It should be understood that the various needs and issues surrounding tank T-108 are evolving as new information about the tank is uncovered. As a result of this progression, this Tank Characterization Plan addresses only the issues that, to this date, have been identified. It is expected that deviations from this plan may occur as additional issues or needs arise which impact the management of SST T-108. As necessary, this Tank Characterization Plan will be revised to reflect those changes or deviations.

This tank is not on any Watch list. Near-term sampling and analysis activities are focused on either verification of the non-watchlist tank status, identification of any new safety issues or changing the non-Watch List status. Should any safety issues be identified additional analysis will occur consistent with the identified issue.

In addition to the resolution of the safety issues, it is intended that all tank waste will be subject to pretreatment and retrieval to prepare for final storage or disposal. Presently, these long-range plans have yet to be fully identified and are, therefore, not included in this document.

2.0 PROGRAM ELEMENTS REQUIRING INFORMATION FOR TANK 241-T-108

This section identifies the various program elements, and identifies which of these programs require characterization data from tank T-108.

2.1 GENERAL SAFETY ISSUES

Tank T-108 was put into service in September 1945. Initially tank T-108 began filling with first cycle decontamination waste from the cascade overflow line connected to Tank 241-T-107. Presently, the tank waste is classified as non-complexed. This tank currently contains waste with a total waste volume of 167 kL (44 kgal), which is equivalent to 29 centimeters (11.5 inches) of waste as measured from the baseline of the tank. The waste is comprised of 87 kL (23 kgal) of saltcake and 79 kL (21 kgal) of sludge with no pumpable liquid remaining (Brevick 1994a).

The tank has been declared an assumed leaker and was removed from service in 1974. Tank T-108 is passively ventilated and was administratively interim stabilized in August 1978 with intrusion prevention completed in 1981. The last photo was taken on July 29, 1984. The last solids volume update was obtained on April 28, 1982 (Hanlon 1995).

The *Tank Safety Screening Data Quality Objective* (Babad and Redus 1994) describes the sampling and analytical requirements that are used to screen waste tanks for unidentified safety issues. The primary analytical requirements for the safety screening of a tank are energetics, total alpha activity, moisture content, and flammable gas concentration.

2.2 SPECIFIC SAFETY ISSUES

2.2.1 Ferrocyanide

This tank is not on the Ferrocyanide Watch List and; therefore, no information needs are currently identified for this program element.

2.2.2 Organic

Tank T-108 is not on the Organics Watch List and; therefore, no information needs are currently identified for this program element.

2.2.3 High Heat

This tank is not on the High Heat Watch List and; therefore, no information needs are currently identified for this program element.

2.2.4 Flammable Gas

This tank is not on the Flammable Gas Watch List and; therefore, no information needs are currently identified for this program element.

2.2.5 Vapor

The tanks currently scheduled to be vapor sampled may be classified into four categories: (1) those tanks which are to be rotary mode core sampled (as a consequence of the rotary sampling system); (2) tanks on the Organic or Ferrocyanide Watch Lists; (3) tanks in C farm; and (4) tank BX-104, due to vapor exposure. Since tank T-108 is NOT categorized in one of the above four groups and; therefore, vapor sampling is not required for this tank.

2.2.6 Criticality

No information separate from that for the general safety issue of tank T-108 are currently identified for this program element. However, if the general safety screening of tank T-108 identifies a potential criticality concern, analyses for fissile materials and neutron absorbers and poisons will be performed as identified in the safety screening data quality objective.

2.3 CONTINUING OPERATIONS

2.3.1 Compatibility/Stabilization

No information needs are currently identified for this program element.

2.3.2 Evaporator

No information needs are currently identified for this program element.

2.4 DOUBLE-SHELL TANK WASTE ANALYSIS PLAN

No information needs are currently identified for this program element, although work to identify these needs is in progress and expected to be completed in fiscal year 1995.

2.5 DISPOSAL

2.5.1 Retrieval

Long-range planning for retrieval needs are currently under development. Short-term data needs do not include tank T-108.

2.5.2 Pretreatment/Vitrification

Long-range planning for disposal needs are currently under development as testing for bounding tanks is performed.

2.6 HISTORICAL MODEL EVALUATION

Bounding tanks and data requirements for historical model evaluations are found in DQO *Historical Model Evaluation Data Requirements* (Simpson 1995). Tank T-108 has been identified as a primary bounding tank for T1 salt cake.

3.0 HOW INFORMATION WILL BE OBTAINED

The safety screening DQO requires that a vertical profile of the tank waste be obtained from at least two widely spaced risers. This vertical profile may be obtained using core, auger (for shallow tanks), or grab samples. Only an auger sampling event is scheduled and required. The auger sampling type has been chosen over other sampling modes due to both the depth of the tank (T-108 is a shallow tank making rotary core sampling unnecessary) and the fact that the surface of tank T-108 is comprised saltcake.

4.0 WHEN INFORMATION IS NEEDED

Data requirements for this section will be determined in the near future.

5.0 PRIORITY OF INFORMATION REQUIREMENTS

Vapor sampling was completed on January 18, 1995 (Stanton 1995). Auger sampling is scheduled for FY 1995 (Stanton 1995).

Table 5-1: Integrated DQO Requirements

Sampling Event	Applicable DQO	Sampling Requirements	Analytical Requirements
Auger Sampling	-Safety Screening DQO -Historical Model DQO	Auger samples from 3 risers separated radially to the maximum extent possible	Energetics, Moisture, Total Alpha, Metals, Anions except oxalate

6.0 REFERENCES

Brevick, C. H., 1994a, *Historical Tank Content Estimate for the Northwest Quadrant of the Hanford 200 West Areas*, WHC-SD-W-ER-351, Rev. 0a, ICF Kaiser Hanford Company, Richland, Washington.

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Simpson, B. C., D. J. McCain, 1995, *Historical Model Evaluation Data Requirements*, WHC-SD-WM-DQO-018, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Stanton, G. A., 1995, Baseline Sampling Schedule, Revision 4.3, (internal memo 74320-95-04, to distribution, March 24, 1995), Westinghouse Hanford Company, Richland, Washington.

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